27

NRCS Plant Information and Conservation Practice Standards

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Abstract

The Natural Resources Conservation Service (NRCS) of the U.S. Department of Agriculture makes many of its technical resources available to the general public through its electronic Field Office Technical Guide (FOTG), which includes the list of conservation practice standards. Conservation practice standards are the minimum levels set for acceptable application of conservation technology. The following practices are considered: conservation cover, contour buffer strips, cross wind trap strips, critical area plantings, field borders, filter strips, grassed waterways, herbaceous wind barriers, land reclamation, abandoned and current mined lands, pasture and hayland plantings, prescribed grazings, and silvopasture establishment. Key entry points for tall fescue [*Lolium arundinaceum* (Schreb.) Darbysh.] within the NRCS PLANTS database are presented. Some tall fescue interactions with wildlife and other ecosystem components are discussed.

The NRCS of the U.S. Department of Agriculture makes many of its technical resources available to its field employees and the general public through its electronic Field Office Technical Guide (FOTG) at http://www.nrcs.usda.gov/technical/efotg/ (verified 18 May 2009). One of the resources contained in this FOTG is the list of conservation practice standards.

Conservation practice standards are established nationally to provide broad guidance for applying conservation technology on the land and to set the minimum levels for acceptable application of the technology. National practice standards may be found at http://www.nrcs.usda.gov/technical/standards/nhcp.html (verified 18 May 2009). The NRCS customizes the national practice standards to conform specifically to the soils, climates, and land uses encountered by its field employees within each state as they provide technical assistance. State-revised conservation practice standards and technical notes contain information that has been derived from research conducted in that state or from research pertinent to conditions in that state.

 Tall Fescue for the Twenty-first Century. H.A. Fribourg, D.B. Hannaway, and C.P. West (ed.) Agronomy Monograph 53.

Tall Fescue as a Conservation Plant

The growth habit of tall fescue, its wide range of adaptation to many different soils and climatic conditions (see Chapter 3, Hannaway et al., 2009, this publication), and its tolerance to traffic make it a suitable conservation plant. Decisions regarding suitability of tall fescue for particular practices are made in consultation with Land Grant University investigators and on the basis of information gained in field trials conducted by the NRCS Plant Materials Program.

Tall fescue is recommended by many NRCS State Offices for the following conservation practices and situations:

Conservation Cover. Permanent vegetative cover established and maintained to protect soil and water resources.

Contour Buffer Strips. Narrow strips of permanent, herbaceous vegetative cover established across the slope and alternating down the slope with parallel, wider cropped strips.

Cross Wind Trap Strips. Strips of herbaceous cover resistant to wind erosion established across the prevailing wind direction.

Critical Area Planting. Permanent vegetation established on sites that have or are expected to have high erosion rates, and on sites that have physical, chemical, or biological conditions that prevent the establishment of vegetation with normal practices.

Field Border. A strip of permanent vegetation established at the edge, or around the perimeter, of a field.

Filter Strip. A strip or area of herbaceous vegetation situated between cropland, grazingland, or disturbed land, including forestland, and environmentally sensitive areas.

Grassed Waterway. A natural or constructed channel that is shaped or graded to required dimensions and established with suitable vegetation.

Herbaceous Wind Barrier. Herbaceous vegetation established in a row or a narrow strip in the field across the prevailing wind direction.

Land Reclamation and Abandoned and Currently Mined Land. Restoration of land and water areas that are affected adversely by past mining practices to increase the productivity of the areas for a beneficial use.

Pasture and hayland planting. A planting of native or introduced forage species.

Prescribed Grazing. Management of the controlled harvest of vegetation with grazing animals.

Silvopasture Establishment. The initiation of an agroforestry application where trees or shrubs, and compatible forages are established in combination on the same area.

Vegetative Barrier. A permanent strip of stiff, dense vegetation along the general contour of slopes or across concentrated water flow areas.

To see these practice standards as they are being used within NRCS operations, the reader should access the electronic Field Office Technical Guides site of NRCS at http://www.nrcs.usda.gov/technical/efotg/index.html, and click on the state of interest. On the menu at the top of the page, select "eFOTG", then "Section IV", then "Table of Contents". The screen will display the titles of all conservation practices for the state. Some other situations where tall fescue is useful are described in Chapter 28 (Joost, 2009, this publication).

Tall Fescue within the NRCS PLANTS Database

The NRCS provides access to much information through its PLANTS database at http://plants.usda.gov (verified 18 May 2009). This database provides users with a checklist of vascular and nonvascular plants and lichens of the United States and its territories, plus access to additional information.

A key entry point into PLANTS is through the PLANTS Name Search, which is accessible from the PLANTS home page. Through this particular search, the reader can search by common name, scientific name, or plant symbol. This search retrieves a list of records containing the input string. The user then may select the pertinent string to gain access to the Plant Profile for the target species. There is a Plant Profile for every taxon in the PLANTS database. A taxon is a taxonomic unit designating an organism or group of organisms. It is assigned a rank and placed at a particular level in a systematic hierarchy reflecting evolutionary relationships. Other entry points into the database include "Checklists & Searches" and "Classification."

The Plant Profile for a species, such as tall fescue, provides access to basic plant attributes (e.g., plant symbol, family, growth habit, duration, U.S. nativity), images, synonymy, plant characteristics, plant fact sheet, plant guide, state and county distribution maps, invasive information, U.S. Fish & Wildlife Service wetland indicator status, wildlife habitat status, and links to other web sites containing pertinent information (e.g., forage, production, conservation, control, breeding, toxicity, ecology). Not all of these items are available for all taxa. To access the Plant Profile for tall fescue from the PLANTS home page http://plants.usda.gov; the reader should enter "tall fescue" into the Name Search box as a common name.

The Plant Fact Sheets and Guides provide basic information about the identification, production, and management of the selected species. In May 2009, PLANTS contained 770 of these documents, including a Fact Sheet and a Guide for tall fescue.

Tall Fescue Taxonomy within the PLANTS Database

Tall fescue has been a taxon of some serious debate among plant systematists. During the past decade agrostologists have realized that *Festuca* is comprised of several, often marginally related, lineages (see Chapter 2, Craven et al., 2009, this publication). There have been fairly good arguments for tall fescue, formerly known as *Festuca arundinacea*, to be retained in the genus *Lolium* (Darbyshire, 1993; see Chapter 2) but recently some systematists have stated that it should be part of the genus *Schedonorus*. It is placed there in the *Catalogue of New World Grasses* (Soreng et al., 2009) and in the *Flora of North America* grass volume (Barkworth et al., 2007). Tall fescue has been recognized by the National Plant Data Center as

Schedonorus phoenix within PLANTS, but it is expected that will be changed to *Schedonorus arundinaceus* with the next update. Although *S. arundinaceus* was an illegitimate name when PLANTS was updated last, the name has been conserved specially through a mechanism developed recently in the botanical nomenclature rules.

Ecosystem Effects

Tall Fescue Interactions with Wildlife

The presence of the endophyte *Neotyphodium coenophialum* (Morgan-Jones and Gams) Glenn, Bacon, and Hanlin in many tall fescue pastures (E+) and E+ fescue volunteer stands may diminish the biological diversity of soil organisms, insects, plants, birds, and mammals (Clubine, 1995; Matthews, 2000; Palmer, 2001). A 0.61- to 0.74-m wide border around tall fescue pastures, composed of native grasses either with or without legumes, can moderate the effect of E+ tall fescue on wildlife (Clubine, 1995). A border supplies some food and cover for small game, and is particularly effective when the pasture is adjacent to a well-managed forest.

Tall Fescue Interactions with Other Plants

Studies have shown that tall fescue is allelopathic to rape (*Brassica napus* L.), birdsfoot trefoil (*Lotus corniculatus* L.), red clover (*Trifolium pratense* L.), crabgrass [*Digitaria ciliaris* (Retz.) Koeler], white clover (*T. repens* L.), sweetgum (*Liquidambar styraciflua* L.), and loblolly pine (*Pinus taeda* L.) (Luu et al., 1989; Pederson, 1985; Peters, 1968; Peters and Zam, 1981; Walters and Gilmore, 1976; Wheeler and Young, 1979). These studies did not reveal whether the endophyte or the tall fescue caused the allelopathy, neither did they suggest a mechanism for the observations. In a recent study, both E+ and endophyte free (E–) tall fescue seed extracts exhibited allelopathy to red and white clovers, small white clover (*T. nigrescens* Viv.), crimson clover (*T. incarnatum* L.), and subterranean clover (*T. subterraneum* L.) (Springer, 1996). In general, there is little plant diversity where dense stands of E+ tall fescue occur.

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